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Application No. (if known): 09/000330

Attorney Docket No.: 05587-00342-US

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Appeal Brief (in triplicate)



Application No.: 09/000330

Docket No.: 05587-00342-USA

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EPW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Toru Nakamura et al.

Application No.: 09/000330

Art Unit: 1756

Filed: March 10, 2003

Examiner: J. L. Dote

For: TONER FOR DEVELOPING  
ELECTROSTATICALLY CHARGED IMAGE  
OF HEAT ROLLER TYPE COPIER OF  
PRINTER

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**APPEAL BRIEF**

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**TABLE OF CONTENTS**

	Page
I. THE REAL PARTY OF INTEREST .....	1
II. RELATED APPEALS AND INTERFERENCES.....	1
III. THE STATUS OF THE CLAIMS.....	1
IV. STATUS OF AMENDMENTS AFTER FINAL.....	2
V. SUMMARY OF THE CLAIMED SUBJECT MATTER .....	2
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL .....	5
VII. ARGUMENTS.....	6
VIII. CONCLUSION.....	<b>Error! Bookmark not defined.</b>
CLAIMS APPENDIX.....	16

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**APPEAL BRIEF**

**I. THE REAL PARTY IN INTEREST**

Ticona GmbH is the real party of interest. The application was assigned and recorded on October 23, 2003, on Reel No. 014066 and Frame No. 0711.

**II. RELATED APPEALS AND INTERFERENCES**

The undersigned is not aware of any related appeals or interferences involving this application. It is noted that a previous Appeal Brief was filed but not acted upon by the Board. Instead, the Examiner mailed an Office Action on January 19, 2005.

**III. THE STATUS OF THE CLAIMS**

Claims 1-15, 17-20, 22-23 and 31-34 have been cancelled. Claims 16, 21, 24-30 and 35 are pending. The subject of the appeal are claims 16, 21, 24-30 and 35 which are attached in the Claims Appendix.

**IV. STATUS OF AMENDMENTS**

An Amendment After Final was filed on August 6, 2004 and was made of record pursuant to the Advisory Action mailed August 25, 2004. Another Amendment After Final was mailed April 19, 2005. The amendment corrected the spelling of the word "cyclohexene". The Examiner suggested that the applicants make this amendment in the Final Office Action mailed January 19, 2005. This is the only change to the amendment. The applicants have not received notification whether the amendment was entered or not. However, the applicants believe that this amendment should be entered since the applicants have complied with the Examiner's request.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

The toner for developing an electrostatically charged image according to the invention is excellent in fixability, light transmission, and anti-toner spent properties, giving a sharp, high quality image, can be applied to any of a dry one-component magnetic toner, a dry one-component nonmagnetic toner, a dry two-component toner and a liquid toner, and exhibits marked effects particularly when used in a color toner (see page 1 the first full paragraph of the specification). The applicants have three independent claims (claims 16, 26 and 28).

This invention of claim 16 relates to a toner for developing an electrostatically charged image of a heat roller type copier or printer, the toner consisting essentially of

- a) a binder resin;
- b) a colorant which is carbon black, diazo yellow, phthalocyanine blue, quinacridone, carmine 6B, monoazo red or perylene; and
- c) a charge control agent,

wherein the binder resin includes a polyolefin resin having a cyclic structure, wherein the polyolefin resin is a copolymer derived from an alpha-olefin, an alicyclic compound having one double bond and, optionally, a diene monomer, and wherein the electrostatically charged copier or printer image is fixed by the action of a heated roller (see independent claim 16 and the specification at pages 3, 4 and 7 and in particular the last paragraph of page 4 for the binder resin, and the third full paragraph at page 7 for the colorant).

Independent claim 26 states:

“A toner for developing an electrostatically charged copier or printer image, comprising:

- a) a binder resin that includes a copolymer having a cyclic structure of
  - (i) ethylene, propylene or butylene, and
  - (ii) cyclohexane or norbornene, and optionally,
  - (iii) a diene;
- b) a colorant which is carbon black, diazo yellow, phthalocyanine blue, quinacridone, carmine 6B, monoazo red or perylene; and
- c) a charge control agent,

wherein the electrostatically charged copier or printer image is fixed by the action of a heated roller.” (See pages 3, 4 and 7 of the specification, in particular, the last paragraph of page 4 for ethylene, propylene or butylene, and the third full paragraph at page 7 for the colorant).”

Claim 26 is narrower than claim 16 in one aspect because the binder requires a specific alpha olefin being ethylene propylene or butylenes and claim 26 requires a specific alicyclic compound being either cyclohexane or norbornene. Claim 26 is broader than claim 16, because it uses “comprising” language instead of “consisting essentially of” language.

28. A toner for developing an electrostatically charged copier or printer image, the toner consisting essentially of:

- a) a binder resin;
- b) a colorant which is carbon black, diazo yellow, phthalocyanine blue, quinacridone, carmine 6B, monoazo red or perylene; and
- c) a charge control agent,

wherein the binder resin includes a polyolefin resin having a cyclic structure, wherein the polyolefin resin is a copolymer derived from

(1) an alpha-olefin selected from the group consisting of ethylene, propylene and butylene,

an alicyclic compound having one double bond and, optionally, a diene monomer, and

wherein the electrostatically charged copier or printer image is fixed by the action of a heated roller. (See pages 3, 4 and 7 of the specification, in particular, the last paragraph of page 4 for ethylene, propylene or butylene, and the alicyclic compound and the third full paragraph at page 7 for the colorant).

Claim 28 is narrower than claim 16 because it requires a specific alpha-olefin selected from the group consisting of ethylene, propylene and butylene.

Dependent claim 29 further limits claim 28, and requires that said alicyclic compound is cyclohexene or norbornene (see the last paragraph at page 3 of the specification).

Dependent 30 further limits claim 28, and requires said alicyclic compound is norbornene and the alpha-olefin is ethylene (see the last paragraph at page 3 of the specification).

#### **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. Claims 16, 21, 24, 25, 28 and 35 were rejected under 35 U.S.C. 112, first paragraph, in particular, for the alleged lack of support for the term “a compound having a double bond”.

2. Claims 16, 21, 24, 26-30 and 35 were rejected under 35 U.S.C. 103(a) as unpatentable over by U.S. Patent No. 5,292,609 ("Yoshikawa") combined with Minami U.S. Patent No. 5,179,171 ("Minami"), as evidenced by the Aldrich Catalog, page 1063 ("Aldrich") and Polymer Technology Dictionary, page 487 ("Polymer Technology").

Specifically the following are the grounds that need to be reviewed.

- a. Whether the Examiner has considered the art as a whole?
- b. Whether the Examiner has selectively picked and chosen from the references?



- c. Whether the Examiner's argument is based on hindsight reconstruction?

3. Whether the prior art renders obvious claim 28 because claim 28 not only requires an alpha-olefin but requires that the alpha olefin is ethylene, propylene or butylene?

4. Whether the prior art renders obvious claims 26, 27, 29 and 30 because claims 26, 27, 29 and 30 not only require an alpha-olefin but require that the alpha olefin is ethylene, propylene or butylene but also require that the alicyclic compound is cyclohexene or norbornene?

## **VII. ARGUMENTS**

### **35 U.S.C. 112, First Paragraph Rejection**

Claims 16, 17, 18, 19, 21, 24, 25, 28, 31, 33, 34, and 35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicants believe that the claims as amended are in compliance with 35 U.S.C. 112, First Paragraph.

The Examiner argued at the bottom of page 3 of the Advisory Action,

"a compound having a double bond" (emphasis added), when given its broadest and reasonable interpretation, is not limited to compounds having one double bond, but includes compounds having one or more double bonds."

The applicants believe that the reasonable interpretation and support for having one double bond can be found at page 4, four lines from the bottom of the page, “compound having a double bond, such as cyclohexene or norbornene.” (emphasis added).

The term “a” indicates only one, therefore the phrase compound having a double bond means that there is only one double bond. The phrase “such as cyclohexene and norbornene” evidences that only one double bond is preferred because both cyclohexene and norbornene have only one double bond. The applicants believe that this portion of the specification provides for adequate support for one double bond. For the above reasons, this rejection should be reversed.

### **PRIOR ART REJECTION**

#### **Claims 16, 21, 24 and 35**

Claims 16, 21, 24, 26-30, and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa combined with Minami, as evidenced by the *Aldrich and Polymer*.

The applicants do not agree with the arguments presented in item no. 10 of the Final Office Action mailed May 3, 2004. In the Yoshikawa patent, a developing agent is disclosed which is characterized by the presence of two polyolefin waxes with different softening point and by a vinyl-based polymer synthetic resin (col. 2, lines 1-7 and 42-45). Examples for vinyl-based polymer synthetic resin are given on col. 4, lines 15-20. In particular, Yoshikawa states at col. 4, lines 21-35:

Some of the examples used as a **binder** for the developing agent are styrene-based copolymers such as

- (1) polystyrene,
- (2) styrene-butadiene copolymers and
- (3) styrene-acryl copolymer,
- ethylene-based copolymers** such as (4) **polyethylene**,
- (5) ethylene-vinyl acetate copolymer**,
- (6) ethylene-vinyl alcohol copolymer**,
- so-called petroleum resins such as (7) phenol-based resin,
- (8) polyamide resin,
- (9) polyester resin,
- (10) maleic-acid-based resin,
- (11) polymethyl methacrylate,
- (12) polyacrylic acid resin,
- (13) polyvinylbutyral,
- (14) aliphatic hydrocarbon resin,
- (15) **alicyclic hydrocarbon**, and
- (16) aromatic hydrocarbon,
- (17) chlorinated paraffin, and
- (18) mixtures thereof.

**Epecially, at least one styrene-based resin should be selected from the group consisting of polystyrene, styrene-butadien copolymer, and styrene-acryl-based copolymer.**<sup>1</sup> (emphasis added)

None of the examples use a copolymer having an alpha-olefin and an alicyclic compound having one double bond as is required by the applicants' claimed invention. There would be no reason to selectively pick the alicyclic compound having one double bond or alpha-olefin based copolymers in this group of 18 examples of binders to arrive

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<sup>1</sup> The numbers (1) –(18) were inserted by the applicants.

at the applicants' claimed invention. While there are alpha-olefin based copolymers (ethylene-based copolymers) within this list there is absolutely no indication to use a copolymer as defined in the instant claims. The examples of ethylene-based copolymers given in Yoshikawa are totally different (col. 4, lines 25-26) from the binder used in the instant claims. Again, reference to "alicyclic compound having one double bond" on col. 4, line 30 cannot overcome this deficiency.

Minami discloses random copolymers characterized that the copolymer comprises polymerized units from ethylene and polymerized units from at least one cycloolefin (see the abstract). Minami states at col. 15, starting at line 53,

The random copolymers of this invention have excellent transparency, heat resistance, heat aging resistance, chemical resistance, solvent resistance, dielectric properties and mechanical properties, a narrow and uniform molecular weight distribution, and a narrow and uniform composition distribution. Accordingly, those having a low molecular weight are synthetic waxes and are useful as

- (1) candles,
- (2) impregnating agents for
- (3) matches,
- (4) paper finishing agents,
- (5) sizes,
- (6) antioxidants for rubber,
- (7) water-proofing agents for  
cardboards,
- (8) slow releasing agents for chemical  
fertilizers,
- (8) heat accumulators,

- (9) binders for ceramics,
- (10) paper condensers,
- (11) electric insulating materials for electric wires and cables,
- (12) agents for decelerating neutrons,
- (13) fiber finishing aids,
- (14) water-repellents for building materials,
- (15) protecting agents for coatings,
- (16) polishing agents,
- (17) thixotropy imparting agents,
- (18) core hardening agents for pencils and crayons,
- (19) carbon ink substrates,
- (20) electrophotographic toners,
- (21) lubricants and
- (22) releasing agents for molding of synthetic resins,
- (23) resin coloring agents,
- (24) hot-melt adhesives, and
- (25) lubricant greases.

Those having a high molecular weight can be used in an optical field as

- (26) optical lenses,
  - (27) optical discs,
  - (28) optical fibers and
  - (29) windowpanes,
- in an electrical field as a
- (30) water tank for electrical irons,
  - (31) parts of electronic ovens,
  - (32) base boards for liquid crystal

display,  
(33) base boards for printed circuit  
boards,  
(34) high frequency circuit boards and  
(35) transparent electrically  
conductive sheets or films,  
in medical and chemical fields as  
(36) syringes,  
(37) pipettes and  
(38) animal gages, and in other  
various fields as housings of (39)  
measuring instruments, and  
(40) helmets.<sup>2</sup> (emphasis added)

Out of the forty different fields disclosed only one field is drawn to electrophotographic toners. However, none of the 39 examples were a toner or drawn to a toner. There is no disclosure in Minami on how to make electrophotographic toners. There is no motivation to combine Minami with Yoshikawa.

The applicants disagree with the Examiner's argument that a person skilled in the art would have had a reasonable expectation of successfully obtaining an electrophotographic color toner having the properties disclosed by Yoshikawa when using the resin taught by Minami in the toner taught by Yoshikawa. In the applicants view such an interpretation can only be done when the instant invention is known with the use of hindsight reconstruction.

The Examiner must consider the references as a whole, In re Yates, 211 USPQ

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<sup>2</sup> The numbers (1) –(40) were inserted by the applicants.

1149 (CCPA 1981). The Examiner cannot selectively pick and choose from the disclosed multitude of parameters **without any direction** as to the particular one selection of the reference **without proper motivation**. The mere fact that the prior art may be modified to reflect features of the claimed invention does not make modification, and hence claimed invention, obvious **unless the prior art suggested the desirability of such modification** is suggested by the prior art (In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984); In re Baird, 29 USPQ 2d 1550 (CAFC 1994) and In re Fritch, 23 USPQ 2d. 1780 (Fed. Cir. 1992)). In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991) (in a determination under 35 U.S.C. § 103 it is impermissible to simply engage in a hindsight reconstruction of the claimed invention; the references themselves must provide some teaching whereby the applicant's combination would have been obvious); In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988) (under 35 U.S.C. § 103, both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure). The applicants disagree with the Examiner why one skilled in the art with the knowledge of the references would selectively modify the references in order to arrive at the applicants' claimed invention. The Examiner's argument is clearly based on hindsight reconstruction.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching, suggestion, or incentive supporting this combination, although it may have been obvious to try various combinations of teachings of the prior art references to achieve the applicant's claimed invention, such evidence does not establish prima facie case of obviousness (In re Geiger, 2 USPQ 2d.

1276 (Fed. Cir. 1987)). There would be no reason for one skilled in the art to combine Yoshikawa combined with Minami, as evidenced by the *Aldrich* and *Polymer*. For the above reasons, this rejection should be reversed.

**Claim 28**

Claim 28 not only requires an alpha-olefin but requires that the alpha olefin is “ethylene, propylene or butylene”.

As stated above, none of the examples of Yoshikawa use a copolymer having an alicyclic compound having one double bond and alpha-olefin, specifically, ethylene, propylene or butylene as is required by the applicants’ claimed invention. There would be no reason to selectively pick the alicyclic compound having one double bond or the specific alpha-olefin (ethylene, propylene or butylene) based copolymers in this group of 18 examples of binders to arrive at the applicants’ claimed invention. While there are alpha-olefin based copolymers (ethylene-based copolymers) within this list there is absolutely no indication to use a copolymer as defined in the instant claims. The examples of ethylene-based copolymers given in Yoshikawa are totally different (col. 4, lines 25-26) from the binder used in the instant claims. Again, reference to “alicyclic compound having one double bond” on col. 4, line 30 cannot overcome this deficiency.

**Claims 26, 27 and 29**

Claims 26 and 27, 29 and 30 not only require an alpha-olefin but require that the alpha olefin is “ethylene, propylene or butylene”, and these claims require that the acyclic compound is cyclohexene or norbornene.



As stated above, none of the examples of Yoshikawa use a copolymer having an alicyclic compound, specifically, cyclohexene or norbornene and alpha-olefin, specifically, ethylene, propylene or butylene as is required by the applicants' claimed invention. There would be no reason to selectively pick cyclohexene or norbornene as the alicyclic compound having one double bond or the specific alpha-olefin (ethylene, propylene or butylene) based copolymers in this group of 18 examples of binders to arrive at the applicants' claimed invention. Again, the examples of ethylene-based copolymers given in Yoshikawa are totally different (col. 4, lines 25-26) from the binder used in the instant claims. Again, reference to "cyclohexene or norbornene" on col. 4, line 30 cannot overcome this deficiency.

### **Claim 30**

Claim 30 is narrower than claims 26, 27 and 29 because claim 30 and further requires that said alicyclic compound is norbornene and the alpha-olefin is ethylene.

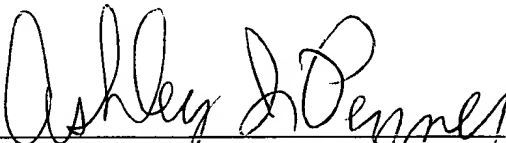
As stated above, none of the examples of Yoshikawa use a copolymer having an alicyclic compound, specifically, norbornene and alpha-olefin, specifically, ethylene, as is required by the applicants' claimed invention. There would be no reason to selectively pick norbornene as the alicyclic compound having one double bond or the specific alpha-olefin (ethylene) based copolymers in this group of 18 examples of binders to arrive at the applicants' claimed invention. Again, the examples of ethylene-based copolymers given in Yoshikawa are totally different (col. 4, lines 25-26) from the binder used in the instant claims. Again, reference to "norbornene" on col. 4, line 30 cannot overcome this deficiency.

It is believed that the claims define an invention which is new, useful, and unobvious. For the above reasons, the applicants request passage to allowance. This brief is being submitted in triplicate. The PTO is authorized to charge Deposit Account No. 03-2775 the amount of \$500.00. The Notice of Appeal was filed on April 19, 2005. It is believed that no extensions are required.

However, in the event that the undersigned is mistaken in his calculations, an appropriate extension of time to respond is respectfully petitioned for, and the Commissioner is hereby authorized to charge the account of the undersigned attorneys, Patent Office Deposit Account No. 03-2775, for any fees which may be due upon the filing of this paper.

Respectfully submitted,

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By 

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**CLAIMS APPENDIX**

1-15. (Cancelled)

16. (Previously presented) A toner for developing an electrostatically charged copier or printer image, the toner consisting essentially of:

- a) a binder resin;
- b) a colorant which is carbon black, diazo yellow, phthalocyanine blue, quinacridone, carmine 6B, monoazo red or perylene; and
- c) a charge control agent,

wherein the binder resin includes a polyolefin resin having a cyclic structure, wherein the polyolefin resin is a copolymer derived from an alpha-olefin, an alicyclic compound having one double bond and, optionally, a diene monomer, and wherein the electrostatically charged copier or printer image is fixed by the action of a heated roller.

Claims 17-20 cancelled.

21. (Previously presented) The toner according to claim 16, wherein the alpha olefin, from which the copolymer is derived, is ethylene.

22-23. (Cancelled)

24. (Previously presented) The toner according to claim 16, wherein the polyolefin resin having a cyclic structure comprises at least one functional group selected from the group consisting of a carboxyl group, a hydroxyl group and an amino group.

25. (Previously presented) The toner according to claim 16, wherein the polyolefin resin having a cyclic structure further comprising a carboxyl group is cross-linked by metal ions or dienes.
26. (Previously presented) A toner for developing an electrostatically charged copier or printer image, comprising:
- a) a binder resin that includes a copolymer having a cyclic structure of
    - (i) ethylene, propylene or butylene, and
    - (ii) cyclohexane or norbornene, and optionally,
    - (iii) a diene;
  - b) a colorant which is carbon black, diazo yellow, phthalocyanine blue, quinacridone, carmine 6B, monoazo red or perylene; and
  - c) a charge control agent,
- wherein the electrostatically charged copier or printer image is fixed by the action of a heated roller.
27. (Previously presented) The toner according to claim 26, wherein said copolymer is formed by a metallocene catalyst or a Ziegler catalyst.
28. (Previously presented) A toner for developing an electrostatically charged copier or printer image, the toner consisting essentially of:
- a) a binder resin;
  - b) a colorant which is carbon black, diazo yellow, phthalocyanine blue, quinacridone, carmine 6B, monoazo red or perylene; and
  - c) a charge control agent,

wherein the binder resin includes a polyolefin resin having a cyclic structure,

wherein the polyolefin resin is a copolymer derived from

(1) an alpha-olefin selected from the group consisting of ethylene,

propylene and butylene,

an alicyclic compound having one double bond and, optionally,

a diene monomer, and

wherein the electrostatically charged copier or printer image is fixed by the action of a heated roller.

29. (Previously presented) The toner as claimed in claim 28, wherein said alicyclic compound is cyclohexene or norbornene.

30. (Previously presented) The toner as claimed in claim 28, wherein said alicyclic compound is norbornene and the alpha-olefin is ethylene.

31-34. (Cancelled)

35. (Previously presented) The toner according to claim 16, wherein the binder resin consists of 1 to 100 parts by weight of said polyolefin resin with a cyclic structure and 0 to 99 parts by weight of at least one resin selected from the group consisting of polyester resins, vinyl acetate resins, vinyl acetate copolymer resins and styrene-acrylate resins.